

Notice of Allowability

Application No.

09/922,624

Examiner

Joseph D. Anthony

Applicant(s)

SCHOTTLAND ET AL.

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to _____.
 2. ☒ The allowed claim(s) is/are 1-9.
 3. ☐ The drawings filed on _____ are accepted by the Examiner.
 4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - (a) ☐ The translation of the foreign language provisional application has been received.
 6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No. _____.
 - (b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
 - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet.

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1 <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 2 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 4 <input checked="" type="checkbox"/> Interview Summary (PTO-413), Paper No. _____. |
| 5 <input type="checkbox"/> Information Disclosure Statements (PTO-1449), Paper No. _____. | 6 <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 7 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9 <input type="checkbox"/> Other |

Examiner's Amendment

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Henry H. Gibson on 10/22/03.

The application has been amended as follows:

In claim 8, line 2, after the word "any" insert the word --one--.

Claim 9 (once amended) Objects formed by injection molding of the transparent or translucent thermoplastic composition of any one of [the previous] claims 1-7.

Please insert the following Abstract of the Disclosure since the application was filed without one.

--The present invention is drawn to a transparent or translucent thermoplastic composition comprising a thermoplastic polycarbonate resin and a phosphorescent phosphor with an aluminate matrix expressed by MAI_2O_4 in which M is calcium, strontium or barium. Said phosphorescent phosphor is present in a quantity of 0.01 to 2.0 % by weight with respect to the quantity of polycarbonate resin and possesses a median particle size of less than 10 micrometer. Forming an object by injection molding using said transparent or translucent thermoplastic composition is also disclosed.—

Reasons For Allowance

2. The following is an examiner's statement of reasons for allowance:

Claims 1-9 are allowed for the following reasons. The prior-art being made of record with this office action is deemed to show that aluminate phosphorescent phosphors having the formula MAI_2O_4 wherein M is calcium, strontium or barium are well known in the art. The cited prior-art also teaches that said doped with Europium and at least one co-dopant such as Dysprosium are also very well known in the art.

1) U.S. Patent Number 5,424,006 to Murayama et al. directly teaches aluminate phosphorescent phosphors having the formula $CaAl_2O_4:Eu,Dy$, table 11. The particle size of said phosphors is such that they pass through a sieve mesh 100 (i.e. they have a particle size below about 150 μm). Also see Figs 15-18 and examples 1-2. In column 21, lines 54-57 the patent suggests adding said phosphors to plastics. Murayama et al. patentable differs from applicant's claimed invention in the following ways: A) there is no disclosure to applicant's claimed particle size range of less than 10 μm for said phosphors, B) there is no disclosure of applicant's phosphor concentration range to polymer of 0.01 to 2.0% by weight, and C) there is no direct disclosure to the use of polycarbonate as the resin material. Furthermore applicant's specification has a clear teaching of superior results in terms of retention of polycarbonate's physical/mechanical properties of ductility and impact resistance when the aluminate phosphorescent phosphor Luminova GLL-300FFS (median particle size of about 1.7 μm) is used as compared to the aluminate phosphorescent phosphor Luminova G-300M (median particle size of 20 plus or minus 5 μm) is used, see Example 2.

2) Phillips et al U.S. Patent Number 6,375,863 teach the use of from 1 to 15% by weight, preferably 5 to 12% by weight and most preferably 10% by weight of Luminova G-300M which is an aluminate phosphorescent phosphor having the formula $\text{SrAl}_2\text{O}_4:\text{Eu,Dy}$, and having a particle size of 20 plus or minus 5 μm , see column 3, line 64 to column 4, line 17 and column 4, line 60 to column 5, line 38. Additional components such as titanium dioxide can be added. These said phosphors are mixed with transparent or translucent resins which may be polycarbonate resins, see abstract, and column 8, lines 20-44. Phillips et al patentable differs from applicant's claimed invention in that there is no disclosure at all to applicant's claimed particle size range of less than 10 μm for said phosphors. Furthermore applicant's specification has a clear teaching of superior results in terms of retention of polycarbonate's physical/mechanical properties of ductility and impact resistance when the aluminate phosphorescent phosphor Luminova GLL-300FFS (median particle size of about 1.7 μm) is used as compared to the aluminate phosphorescent phosphor Luminova G-300M (median particle size of 20 plus or minus 5 μm) is used, see Example 2.

3) Feng et al. U.S. Patent Number 5,976,411 is very similar in teaches as Phillips et al U.S. Patent Number 6,375,863 since they have the same Assignee. Examples 10-11 teach polycarbonate compositions comprising 5.0% by weight of Luminova phosphorescent phosphors which is assumed to be Luminova G-3000M since this is the only Luminova product directly disclosed, see column 7, lines 25-39. Feng et al patentable differs from applicant's claimed invention in that there is no disclosure at all to applicant's claimed particle size range of less than 10 μm for said phosphors.

Furthermore applicant's specification has a clear teaching of superior results in terms of retention of polycarbonate's physical/mechanical properties of ductility and impact resistance when the aluminate phosphorescent phosphor Luminova GLL-300FFS (median particle size of about 1.7 μm) is used as compared to the aluminate phosphorescent phosphor Luminova G-300M (median particle size of 20 plus or minus 5 μm) is used, see Example 2.

4) Geisel U.S. Patent Number 5,674,437 teaches the addition of 0.5% by weight of aluminate phosphorescent phosphors having the formula MAl_2O_4 wherein M is calcium, strontium or barium as taught by U.S. Patent Number 5,424,006 into polypropylene, see column 3, lines 58-67 and example 1. The addition of said phosphors into polycarbonates is suggested, see column 3, lines 27-34. Geisel patentable differs from applicant's claimed invention in that there is no disclosure at all to applicant's claimed particle size range of less than 10 μm for said phosphors. Furthermore applicant's specification has a clear teaching of superior results in terms of retention of polycarbonate's physical/mechanical properties of ductility and impact resistance when the aluminate phosphorescent phosphor Luminova GLL-300FFS (median particle size of about 1.7 μm) is used as compared to the aluminate phosphorescent phosphor Luminova G-300M (median particle size of 20 plus or minus 5 μm) is used, see Example 2.

5) Ishihara et al U.S. Patent Number 5,607,621 teaches aluminate phosphorescent phosphor having the formula SrAl_2O_4 optionally doped with Eu, and having a particle size of 1 to less than 75 μm , see abstract, and column 3, lines 46-67.

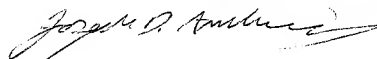
The aluminate phosphorescent phosphor is incorporated into a synthetic resin such as polycarbonate in a concentration range of 5 to 20 % by weight, see column 3, lines 22-45. Ishihara et al is patentable different from applicant's claimed invention in that Ishihara et al teaches directly against using a concentration amount of aluminate phosphorescent phosphor at less than 5% by weight of polymer, see column 3, lines 22-45. Furthermore applicant's specification has a clear teaching of superior results in terms of retention of polycarbonate's physical/mechanical properties of ductility and impact resistance when the aluminate phosphorescent phosphor Luminova GLL-300FFS (median particle size of about 1.7 μm) is used as compared to the aluminate phosphorescent phosphor Luminova G-300M (median particle size of 20 plus or minus 5 μm) is used, see Example 2.

6) The other examiner cited references are deemed to disclose aluminate phosphorescent phosphors having the formula MAI_2O_4 wherein M is calcium, strontium or barium which are added to polymers or are in a layer adjacent to a polymer. In any case, none of these references either individually or in combination anticipate or render obvious applicant's claims for the same reasons as given above or for additional reasons. Furthermore, none of these references have any disclosure to applicant's specification's clear teaching of superior results in terms of retention of polycarbonate's physical/mechanical properties of ductility and impact resistance when the aluminate phosphorescent phosphor Luminova GLL-300FFS (median particle size of about 1.7 μm) is used as compared to the aluminate phosphorescent phosphor Luminova G-300M (median particle size of 20 plus or minus 5 μm) is used, see Example 2.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Examiner Information

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Joseph D. Anthony whose telephone number is (703) 308-0446 until 12/04/03; after 12/04/03 my new telephone number will be (571) 272-1117. This examiner can normally be reached on Monday through Thursday from 7:35 a.m. to 6:00 p.m. in the eastern time zone. If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Vasu Jagannathan, can be reached on (703) 306-2777. The centralized FAX machine number is (703) 872-9306. All other papers received by FAX will be treated as Official communications and cannot be immediately handled by the Examiner. Any inquiry of a general nature or relating to the status of this application should be directed to the receptionist whose telephone number is (703) 308-0651. The receptionist is located on the 8th floor of Crystal Plaza 3 (e.g. CP-3) and will be the welcome point for all visitors to the building.



**Joseph D. Anthony
Primary Patent Examiner
Art Unit 1714**

10/22/03